

## **REMARKS**

The present response is being submitted in reply to the final Office action issued on April 29, 2004. Claims 15, 17, 19-23 and 25 were pending in this application. By the present response, claims 15-22 and 24-25 are canceled; claim 23 is amended and claims 26-32 are added. Claim 23 has been amended to read "A method for reducing cold flow...", support for which may be found in the present specification at page 8, second full paragraph, page 9, last paragraph and page 10, first paragraph. In addition, the applicant submits that claim 23 (as amended) now recites that the second layer (which contains the polymer having the  $T_g$ ) is responsible for reducing cold flow, support for which is found in the specification at page 9, lines 1-15. Claims 26 and 27 are based on now canceled claims 19 and 20, respectively. Support for claims 28, 31 and 32 can be found in the specification in the Example found at pages 10-12. Claims 29 and 30 are based on now canceled claims 21 and 22, respectively. Reconsideration is respectfully requested in light of the amendments being made hereby and of the following remarks.

### **Rejection of claims 15, 17, 19-23 and 25 under 35 U.S.C. 103(a)**

Claims 15, 17, 19-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,151,271 (Otsuka et al.) by itself or in view of U.S. Patent No. 6,416,858 (Ercillo et al.). According to the Examiner, Otsuka teaches a pressure sensitive adhering composite medicinal preparation comprising at least two layers, namely at least one macromolecular layer and a polymer layer. In addition, the Examiner states that the polymer layer contains a polymer or copolymer that has a glass transition temperature of not lower than  $-50$  degrees Celsius, preferably  $-45$  to  $75$  degrees

Celsius. Furthermore, the Examiner states that Otsuka teaches a release liner. The Examiner is of the opinion that this allows an increased degree of diffusion therein of the drug and adjuvant but also does not deteriorate the physical strength thereof. In summary, the Examiner's opinion is that Otsuka et al. teaches every limitation of the claims except for the third layer or a protective layer.

The Examiner relies on Ercillo et al. which the Examiner states teach a multi-layer pressure adhesive construction, which contains a facestock (protective layer), a first adhesive layer that has one Tg, the second adhesive layer having a Tg of 10 to 50 degrees lower than the first layer and a release liner. The Examiner also states that Ercillo teaches that the degree of tack possessed by a particular adhesive layer is largely dependent on the glass temperature of the layer.

It is the Examiner's belief that it would have been obvious to one skilled in the art to follow the guidance of Otsuka and incorporate a third layer. The Examiner states that one skilled in the art would be motivated to do so since Otsuka teaches that the composite should contain at least two layers; therefore suggesting the incorporation of more than one polymer layer or macromolecular layer respectively.

As noted above, each of the pending claims (except for claim 23) has been canceled in the present response. The Examiner's rejection will now be discussed in light of amended claim 23 and new claims 26-32.

Applicant respectfully submits that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine the reference teachings. Second, there must be a

reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all of the claim limitation. Applicant respectfully submits that one skilled in the art would have no suggestion or motivation to combine the aforementioned references in order to arrive at the present invention. Additionally, even if one skilled in the art were to consider Otsuka et al. alone, or in combination with Ercillo et al., each and every limitation of the present invention would not be disclosed, nor would there be a reasonable expectation of success if the aforementioned references were to be considered.

The applicant first would like to note that in the Office action (page 6, first full paragraph), the Examiner states that the previously pending claims were not drawn to the method of “reducing cold-flow” but rather were drawn to a method of use, the system and the process of making the system. The present claims, as also noted above, have now been amended so as to recite a method of reducing cold-flow. Therefore, the applicant believes that the present claims may now be fully differentiated from the aforementioned prior art references.

The applicant respectfully submits that Otsuka et al. do not address the problem of cold flow which may occur during the storage of active substance-containing skin patches. Otsuka et al. sought to prevent drug crystallization and to increase the efficiency of percutaneous drug absorption. This problem was claimed to have been solved in that reference by providing two layers having different glass transition temperatures, incorporating the drug substance into one of these layers and incorporating an absorption-enhancing adjuvant into the corresponding second layer (claim 1; and col. 2, 1<sup>st</sup>

paragraph). By incorporating these two components (i.e., a drug and an absorption-enhancing adjuvant) in two different layers, the preparation set forth in Otsuka et al. can contain greater amounts of drug and adjuvant as compared with the case when both components are present within a single layer (col. 6, lines 22-26). Otsuka et al. teach that the glass transition temperatures of the polymers or macromolecular substances should be selected within the specified ranges in order to obtain an increased extent of migration of drug and adjuvant. These two components are separately contained in two different layers (col. 2, lines 13-15 and 56-59, col. 3, lines 3-10).

The applicant submits that the problem addressed by Otsuka et al. and the proposed solution are clearly quite different from the problem addressed in the instant application, namely, the reduction of cold flow, and the solution posed therefor. In the examples set forth in Otsuka et al., storage stability was not assessed or addressed. Therefore, the applicant submits that one skilled in the art would not have considered Otsuka et al. in an attempt to correct the problem of cold flow.

Additionally, Otsuka et al. only discloses a two layer medicinal preparation comprised of a macromolecular substance layer and a polymer layer, wherein the polymer has a lower glass transition temperature than does the macromolecular substance. This differs from the present invention which is a method for reducing cold flow involving a three layer structure, each layer containing a polymer, and the middle layer's polymer having a glass transition temperature higher than the two layers adjacent thereto.

Even when considered with Ercillo, each and every limitation of the claims of the present invention are not taught or disclosed. Ercillo also does not relate to a method for

reducing fold flow, nor does it even pertain to active substance-containing therapeutic patches. The applicant believes that a person having ordinary skill in this field would not have even considered active constructions, such as those of Ercillo, which do not contain active substances. Although Ercillo does appear to mention the influence of the glass transition temperature ( $T_g$ ) on cohesion and converting performance, the reference does not teach or discuss anything about the relationship between polymers having a certain  $T_g$  and the long-term storage ability of laminates containing a layer containing such polymers.

The applicant would also like to point out that Ercillo refers to an “aging” process (col. 8, lines 10-24). This process is different from cold flow as it concerns a loss of adhesion over time which is caused by migration of tackifiers or plasticizers. Likewise, the “convertibility” discussed by Ercillo does not teach anything about the behavior of the cold flow problem, although both parameters are influenced by the cohesiveness of the polymer layers.

The present invention, as recited in the claims, incorporates a third layer on a second layer, each comprising a polymer having a glass transition temperature. The glass transition temperature of the polymer of the third layer is less than the glass transition temperature of the polymer of the second layer, but can be either the same as or different from the glass transition temperature of the polymer of the first layer. Nowhere in Ercillo is it taught or disclosed that the glass transition temperature of the polymer of a third layer must be lower than the glass transition temperature of the polymer of a second layer. Therefore, even when combined with Otsuka et al., this feature of the present invention

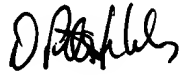
would not be taught or disclosed.

In addition, the Examiner states in the Office action (page 6, lines 1-2) that "the criticality of the invention lies in the two layers having different glass transition temperatures." The applicant respectfully submits that while this difference is of critical importance to the present invention, the specified selection of the glass transition temperature of the third layer is also important as it concerns the function of this layer as an active substance reservoir. Also, by arranging the second layer with its  $T_g2$  in a laminate structure (claim 23), it is possible to form the first and third layers as active substance-containing reservoirs and the second layer as a rate-controlling layer (dependent claims 29-32). In such an arrangement, the applicant submits that the second has a dual function: 1) acting as a rate-controlling layer, and 2) reducing cold flow. The applicant submits that such disclosure is not rendered obvious by Ercillo since it does not even pertain to active substance-containing patches.

### Conclusion

For the foregoing reasons and amendments, it is believed that the present application as amended is in condition for allowance, and such action is earnestly solicited. The Examiner is invited to call the undersigned if there are any remaining issues to be discussed which could expedite the prosecution of the present application.

Respectfully submitted,

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